



Volunteer Lake Assessment Program Individual Lake Reports

STEVENS POND, MANCHESTER, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	445	Max. Depth (m):	5.2	Flushing Rate (yr ⁻¹)	4.9
Surface Area (Ac.):	15	Mean Depth (m):	2.8	P Retention Coef:	0.51
Shore Length (m):	1,075	Volume (m ³):	176,000	Elevation (ft):	315

TROPHIC CLASSIFICATION

Year	Trophic class
1981	EUTROPHIC
1997	EUTROPHIC

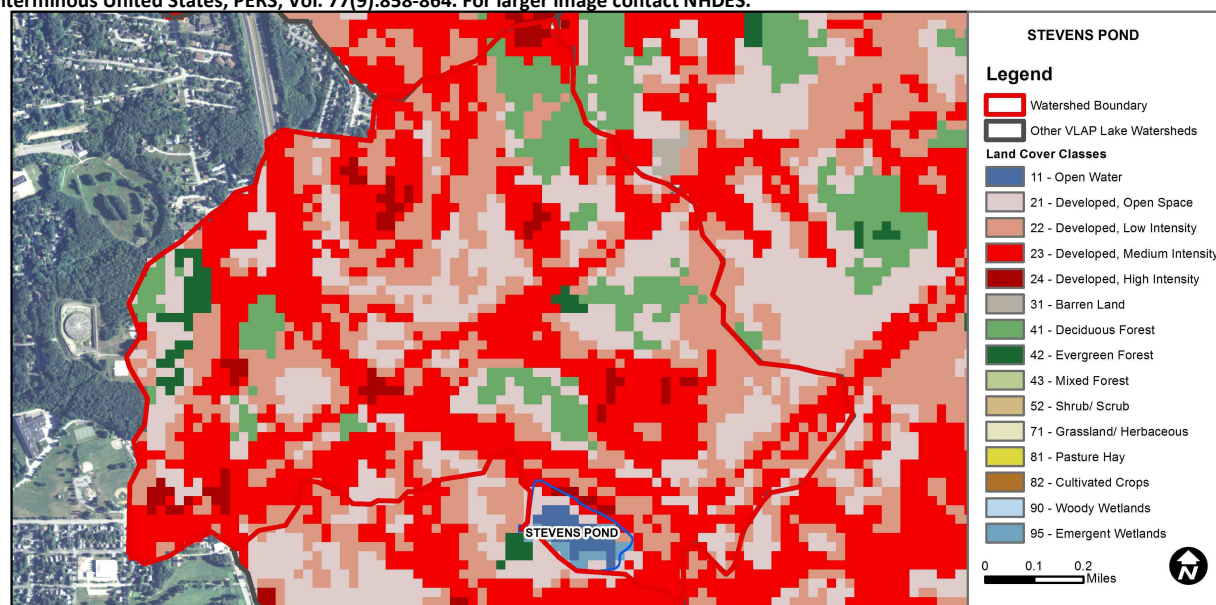
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Bad	There are >10% of samples (minimum of 2), exceeding criteria with one or more samples considered large exceedance.
	Dissolved oxygen saturation	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Bad	There are >10% of samples (minimum of 2), exceeding indicator with one or more samples considered large exceedance.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	1	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	20.7	Deciduous Forest	7.98	Pasture Hay	0
Developed-Low Intensity	26.3	Evergreen Forest	1.45	Cultivated Crops	0
Developed-Medium Intensity	38.4	Mixed Forest	0	Woody Wetlands	0
Developed-High Intensity	2.82	Shrub-Scrub	0	Emergent Wetlands	0.52



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

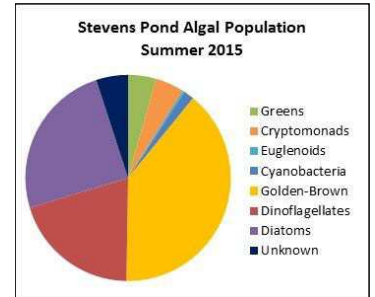
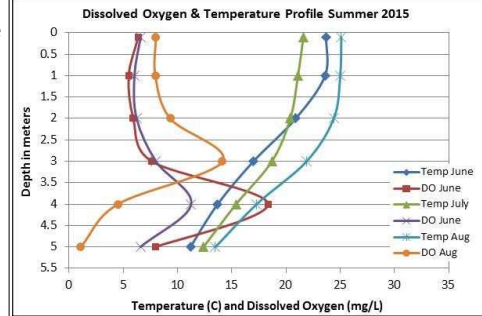
STEVENS POND, MANCHESTER

2015 DATA SUMMARY

RECOMMENDED ACTIONS: Stevens Pond is an urban pond that receives a high pollutant load from the surrounding watershed. The elevated conductivity and chloride are a result of road salting practices, as depicted by the increased epilimnetic conductivity in 2015 following a severe winter. Pond chlorophyll and phosphorus levels have stabilized since 2009 however within a slightly higher range than the period 2000-2005. The dry summer weather conditions may have helped to improve pond transparency and keep phosphorus and chlorophyll levels within average ranges. Keep up the great work!

OBSERVATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- **CHLOROPHYLL-A:** Chlorophyll levels were low in June and July and increased to elevated levels in August. The 2015 average chlorophyll level remained fairly stable with 2014 and was slightly greater than the state median. Historical trend analysis indicates highly variable chlorophyll levels since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and Outlet conductivity and chloride remained elevated and much greater than the state medians. Epilimnetic (upper water layer) and Outlet chloride levels exceeded the state chronic chloride standard of 230 mg/L. Historical trend analysis indicates highly variable epilimnetic chloride since monitoring began.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus was average in June and increased to slightly elevated levels in July and remained stable in August. Average epilimnetic phosphorus remained stable with 2014 and was greater than the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Metalimnetic (middle water layer) phosphorus increased slightly as the summer progressed and was slightly elevated. Hypolimnetic (lower water layer) phosphorus was slightly elevated in June, decreased to low levels in July, and then increased to slightly elevated levels in August. Outlet phosphorus levels were elevated in June and decreased to average levels in July and August.
- **TRANSPARENCY:** Transparency (NVS) was good in June and then decreased (worsened) slightly in July and again in August potentially due to the elevated algal growth. Average NVS transparency increased (improved) from 2014, was slightly less than the state median, and was the best measured since 2005. Transparency measured with the viewscope (VS) was generally equal to that measured without (NVS).
- **TURBIDITY:** Epilimnetic and metalimnetic turbidities were relatively stable from June to August and within an average range for those stations. Hypolimnetic turbidity was low in June and July and elevated in August potentially due to drifting to a shallower depth at the deep spot when sampling. Outlet turbidity was slightly elevated in June and August and lab notes indicate algae may have caused the elevated turbidity in August.
- **pH:** Deep spot and Outlet pH levels were generally within the desirable range 6.5-8.0 units. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years.



Station Name	Table 1. 2015 Average Water Quality Data for STEVENS POND								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	33.3	5.87	410	1386.7	19	3.00	2.96	1.65	6.88
Metalimnion				1406.0	21			1.63	6.95
Hypolimnion				1818.7	22			3.60	6.64
Outlet			403	1401.3	19			1.97	6.72

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Stable	Trend not significant; data highly variable.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

